ABSTRACT OF DISCLOSURE

Novel methods are disclosed for designing and constructing miniature optical systems and devices employing light diffractive optical elements (DOEs) for modifying the size and shape of laser beams produced from a commercial-grade laser diodes, over an extended range hitherto unachievable using conventional techniques. The systems and devices of the present invention have uses in a wide range of applications, including laser scanning, optical-based information storage, medical and analytical instrumentation, and the like. In the illustrative embodiments, various techniques are disclosed for implementing the DOEs as holographic optical elements (HOEs), computer-generated holograms (CGHs), as well as other diffractive optical elements.